

5 to a destination device and to transfer information contained in the packet to the destination
6 device without use of a routing function.

1 18. The switch of claim 17, wherein the plurality of ports includes (i) a first plurality
2 of ports coupled to a plurality of devices, including the destination device, associated with at
3 least two networks, and (ii) a second plurality of ports coupled to a router.

1 19. (Amended) The switch of claim 18, wherein both of the at least two networks are
2 virtual local area networks.

1 20. The switch of claim 18, wherein the mechanism analyzes data transmitted
2 between the router and the destination device.

1 21. The switch of claim 20, wherein the data is packetized in accordance with an
2 Address Resolution Protocol.

1 22. (Amended) The switch of claim 17, wherein the mechanism generates a data
2 structure including layer two (L2) addresses and corresponding layer three (L3) addresses
3 associated with the destination device prior to transferring information to the destination device.

1 23. The switch of claim 18, wherein the destination device includes a server
2 associated with one of the at least two networks.

1 24. (Amended) A switch comprising:
2 a plurality of ports adapted for coupling together a plurality of networks and a router; and
3 a mechanism to (a) analyze information transferred from a source device of a first
4 network to a destination device of a second network, (b) store information identifying a port

5 coupled to the second network, a layer two (L2) address of the destination device and a layer
6 three (L3) address of the destination device corresponding to the L2 address, and (c) using the
7 information to forward data between the plurality of networks.

sub
ci 7
1 25. The switch of claim 24, wherein the information is obtained from packets
2 configured in accordance with an Address Resolution Protocol.

1 26. The switch of claim 24, wherein the mechanism uses the information by (i)
2 determining both the L2 address of the destination device and the port coupled to the second
3 network based on the L3 address of the destination device supplied by the source device, and (ii)
4 setting a destination of packets of the data to the L2 address of the destination device.

1 27. Cancelled.

sub
ci 7
1 28. (Amended) A network comprising:
2 a destination device of a first network;
3 a source device of a second network;
4 a router; and
5 a switch having a plurality of ports supporting communication to the destination device,
6 the source device and the router, the switch including software to determine, using layer three
7 (L3) information contained in a packet received by a first port coupled to the source device,
8 which one of the plurality of ports is coupled to the destination device, to produce a data
9 structure including layer two (L2) addresses and corresponding layer three (L3) addresses
10 associated with the destination device and to transfer information contained in the packet from
11 the source device to the destination device without use of a routing function.

Sub C1

29. (Amended) The network of claim 28, wherein the first network is separate and distinct from the second network and the switch is remotely located from the router.

30. Cancelled.

31. Cancelled.

32. Cancelled.

33. Cancelled.

34. Cancelled.

35. Cancelled.

36. Cancelled.

37. (Amended) For use in transferring data from a first network to a second network via a switch interposed between a router and the first and second networks without assistance by the router, the method comprising:

receiving a data packet by the switch, the data packet originating from a source device associated with the first network and including a layer three (L3) address of a destination device of the second network;

determining the L2 address associated with the L3 address of the destination device through access of one or more data structures within the switch and a port of the switch to which the destination device associated with the L3 address is attached; and

10
sub C1
3
setting a destination address of the data packet to the L2 address.

38. (Amended) The method of claim 37, wherein the first and second networks are
2 virtual local area networks.

1 39. Cancelled.

1 40. Cancelled.

1 41. Cancelled.

1 42. Cancelled.

1 43. Cancelled.

1 44. (New) The switch of claim 17, wherein the source port is coupled to a first
2 network.

by
1 45. (New) The switch of claim 44, wherein the one of the plurality of ports is coupled
2 to a second network.

sub C1
1 46. (New) The switch of claim 45, wherein the first network is a first virtual local
2 area network.

1 47. (New) The switch of claim 46, wherein the second network is a second virtual
2 local area network different from the first virtual local area network.

1 48. (New) The switch of claim 17, wherein the usage of routing function is use of a
2 rating protocol.

1 49. (New) The network of claim 28, wherein the usage of routing function is use of a
2 rating protocol.

Sub Cl 1 50. (New) The method of claim 37, wherein the one or more data structures is a table.

b4 1 51. (New) The method of claim 37 further comprising sending the data packet to the
2 destination device.

1 52. (New) Adapted to communicate with a router and a destination device, a switch
2 comprising:
3 a plurality of ports; and
4 a mechanism to utilize a data structure including layer two (L2) information and
5 corresponding layer three (L3) information associated with the destination device, the data
6 structure being accessed to determine which one of the plurality of ports is coupled to the
7 destination device and to send information contained in the packet to the destination device with
8 the L2 information in the packet unchanged in order to reduce traffic on the router.

1 53. (New) The switch of claim 52, wherein the plurality of ports includes a first
2 plurality of ports adapted for communication with a plurality of devices including the destination
3 device, the first plurality of ports being associated with at least two virtual local area networks.

1 54. (New) The switch of claim 53, wherein the plurality of ports further includes a
2 second plurality of ports coupled to the router.

1 55. (New) The switch of claim 52, wherein the mechanism further analyzes data
2 transmitted between the router and the destination device.

1 56. (New) The switch of claim 55, wherein the data is packetized in accordance with
2 an Address Resolution Protocol.

Sub C 1 57. (New) The switch of claim 52 being physically removed from the router.

1 58. (New) The switch of claim 52, wherein the data structure is a table.

by 1 59. (New) Adapted for establishing communications between two networks, a switch
2 comprising:

3 an input; and

4 a mechanism to determine, using layer three (L3) information contained in a packet
5 received over the input, how a destination device is coupled to the input and to transfer
6 information contained in the packet to the destination device without use of a routing protocol.

1 60. (New) The switch of claim 59, wherein the input comprises a plurality of ports
2 including a first plurality of ports being adapted for communication with a plurality of devices
3 including the destination device, the first plurality of ports being associated with at least two
4 virtual local area networks.

1 61. (New) The switch of claim 59, wherein the mechanism analyzes data transmitted
2 between the router and the destination device.

1 62. (New) The switch of claim 61, wherein the data is formatted in accordance with
2 an Address Resolution Protocol.

1 63. (New) The switch of claim 59 being physically removed from the router.

sub
ch 2 64. (New) Adapted to be in communication with a router and a destination device, a
switch comprising:

3 a data structure configured to contain layer two (L2) addresses and corresponding layer
4 three (L3) addresses associated with multiple destination devices; and

by 5 logic to populate the data structure based on information received from the router during
6 initial communications with the destination device and, for communications after the initial
7 communications, to utilize the data structure to obtain an L2 address for the destination device
8 for forwarding incoming information to the destination device without accessing the router.

1 65. (New) The switch of claim 64, wherein the initial communication includes a
2 query in accordance with an Address Resolution Protocol.

1 66. (New) The switch of claim 64, wherein the data structure is a table.

1 67. (New) A switch comprising:

2 a data structure to store a layer three (L3) address and a layer two (L2) address
3 corresponding to the L3 address associated with a device;

4 means for forwarding a packet if the L3 address of a destination device of the packet
5 matches an L3 address in the data structure, wherein the switch does not process the packet if the
6 L3 address of the destination device matches the L3 address in the data structure; and

7 means for communicating the packet to a router if the L3 address of the destination
8 device does not match any L3 address in the data structure.

Sub
CP } 68. (New) The switch of claim 67, wherein the data structure is a table including L2
address and a corresponding L3 address for each destination device of a first local area network.

by 69. (New) The switch of claim 68, wherein the packet is sent from a device located in
a second local area network different from the first local area network.

1 70. (New) The switch of claim 69, wherein both the first and second local area
2 networks are virtual local area networks.

1 71. (New) A method comprising:

2 storing a layer three (L3) address and a layer two (L2) address corresponding to the L3
3 address in a data structure of a switch;

4 forwarding a packet to a destination device with the packet being processed by the switch
5 if an L3 address of the destination device of the packet matches an L3 address in the data
6 structure; and

7 communicating the packet to a router if the L3 address of the targeted destination device
8 does not match any L3 address in the data structure.

1 72. (New) The method of claim 71, wherein the string of the L3 address and the
2 corresponding L2 address is in a table contained in the switch.

73. (New) The method of claim 72, wherein prior to forwarding of the packet, the method further comprises receiving the packet from a source device by the switch.

74. (New) The method of claim 73, wherein the source device and the destination device are placed in different virtual local area networks.